

## MAINTENANCE

This section suggests a periodic inspection of key components of the ECD at various intervals. The frequency of the inspection is a recommendation and can be modified based on Company policy. If equipment troubleshooting indicates a problem with a specific component, follow the maintenance instructions as described.

### Liquid Drip Pot

Daily or as needed, manually drain fuel gas scrubber and the Drip Pot into approved container and dispose/collect per company guidelines.

### Pilot Fuel Gas Scrubber

Daily or as needed, manually drain fuel gas scrubber and the Drip Pot into approved container and dispose/collect per company guidelines.

### Operating Pressures

Routinely (daily) check Pressures.

- Pilot Regulator should be set between 5 and 7 psig.
- ECD should be operating at low pressures of 1 oz/in<sup>2</sup> to 10 oz/in<sup>2</sup>.

### Air Flame Arrestor Cells

#### All ECDs except ECD-3-48HV-90

It is recommended to check the Air Flame Arrestor Cell at bottom of ECD on a semi-annual basis.

- 1) Shutdown ECD (as listed on page 16) prior to inspection.
- 2) Open the access cover on the side of the ECD stack and inspect the air cell for dirt or other foreign material. This contamination will plug the fluted openings within the air cell and decrease air flow to the burner.

**Note:** Severely dirty Air Flame Cell can cause ECD to start smoking.

- 3) In cases of light blockage, it may be possible to dislodge foreign material(s) by introducing compressed air upward from the bottom of the air cell. Use a cleaning nozzle with less than 90 psig of compressed air. Care must be taken not to damage the flutes on the air cell.
- 4) If foreign material blockage is more severe, remove the air cell for cleaning:
  - a) Remove the bolting on the hold-up angle brackets supporting the air cell. Additional field assistance may be required to bear the weight of the air cell.

- b) Once removed, use high pressure water spray to dislodge foreign material blockage of the air cell.
- c) Air dry the flame cell and re-install the air flame cell.

#### **ECD-3-48HV-90**

It is recommended to check the Air Flame Arrestor Cells in the base unit of the ECD on a semi-annual basis.

- 1) Shutdown ECD (as listed on page 16) prior to inspection.
- 2) Open the access door on the base unit of the ECD and perform a "Confined Space Entry Permit" procedure per company policy.
- 3) Carefully enter the base unit and inspect all four (4) air cells for dirt or other foreign material. This contamination will plug the fluted openings within the air cell and decrease air flow to the burner.

**Note:** Severely dirty Air Flame Cell can cause ECD to start smoking.

- 4) In cases of light blockage, it may be possible to dislodge foreign material(s) by introducing compressed air outward from the inner surface of the air cell. Use a cleaning nozzle with less than 90 psig of compressed air. Care must be taken not to damage the flutes on the air cell.
- 5) If foreign material blockage is more severe, remove the air cell for cleaning:
  - a) Remove the bolting on the hold-up angle brackets supporting the air cell. Additional field assistance may be required to bear the weight of the air cell.
  - b) Once removed, use high pressure water spray to dislodge foreign material blockage of the air cell.
  - c) Air dry the flame cell and re-install the air flame cell.

#### **ARC Igniter**

Periodically (monthly recommended) test the ARC Igniter per instructions in the ARC Troubleshooting document 1200-100.

#### **In-line Gas Flame Arrestor**

It is recommended to check the In-line Gas flame arrestor in the piping to the ECD on an annual basis.

- 1) Shutdown ECD as described on page 16 prior to inspection.
- 2) It is not possible to inspect the in-line gas flame arrestor in place. Remove the in-line arrestor from the piping and inspect the flutes in the arrestor for debris blockage. The use of hammer unions upstream and downstream of this arrestor would make this task easier.
- 3) Use compressed air at less than 90 psig to dislodge debris. If cleaning is not possible in the field, replace in-line flame arrestor with a spare unit (which is available from Cimarron).
- 4) Re-install in-line arrestor in the piping. Assure that all piping threads are tight and gas does not leak from the pipe threads.

### **Main Burner**

#### **Burner Removal (All ECDs except ECD-3-48HV-90)**

- 1) Complete shutdown of ECD is required prior to this process as described on page 16.
- 2) Remove the Air Cell on bottom of ECD per the instructions on page 18 to access the burner assembly.
- 3) Disconnect Ignition Cable and Igniter Tip to the pilot assembly.
- 4) Disconnect pilot fuel gas piping at the Hex union and remove Pilot assembly bracket. Carefully remove pilot assembly out of the way.
- 5) Disconnect the waste gas piping to the main burner at the hammer union. Remove the bolting on the burner bracket and carefully remove burner assembly. Additional field assistance may be necessary to bear the weight of the burner.
- 6) Inspect the burner per the guidelines below.
- 7) Re-install all components removed in reverse order and verify that all piping connections are tight and secure.

#### **Burner Removal (ECD-3-48HV-90)**

- 1) Complete shutdown of ECD is required prior to this process as described on page 16.
- 2) Open the access door on the base unit of the ECD and perform a "Confined Space Entry Permit" procedure per company policy.
- 3) Carefully enter the base unit.
- 4) Disconnect Ignition Cable and Igniter Tip to the pilot assembly.
- 5) Disconnect pilot fuel gas piping at the Hex union and remove Pilot assembly bracket. Carefully remove pilot assembly out of the way.
- 6) Disconnect the waste gas piping to the main burner at the hammer union. Remove the bolting on the burner bracket and carefully remove burner assembly. Additional field assistance may be necessary to bear the weight of the burner.
- 7) Inspect the burner per the guidelines below.
- 8) Re-install all components removed in reverse order and verify that all piping connections are tight and secure.

### **Burner Inspection and Cleaning**

Burner inspection and cleaning is recommended on a semi-annual schedule.

#### **All ECDs except ECD-3-48HV-90**

With burner assembly removed from ECD, verify that all jets are clean and in good working order (replace any jets that are plugged, destroyed or missing).

#### **ECD-3-48HV-90**

With burner assembly removed from ECD, verify that all orifices are clean and in good working order (consult with Cimarron if there are issues).